Title
Man With Abdominal Pain and Bilious Emesis.

Journal
Annals of emergency medicine, 72(6)

ISSN
0196-0644

Authors
Young, Timothy J
Raafat, Eleeza
Kamangar, Nader

Publication Date
2018-12-01

DOI
10.1016/j.annemergmed.2018.06.015

Peer reviewed

Timothy J. Young, MD; Eleeza Raafat, BS; Nader Kamangar, MD

0196-0644/$-see front matter

https://doi.org/10.1016/j.annemergmed.2018.06.015

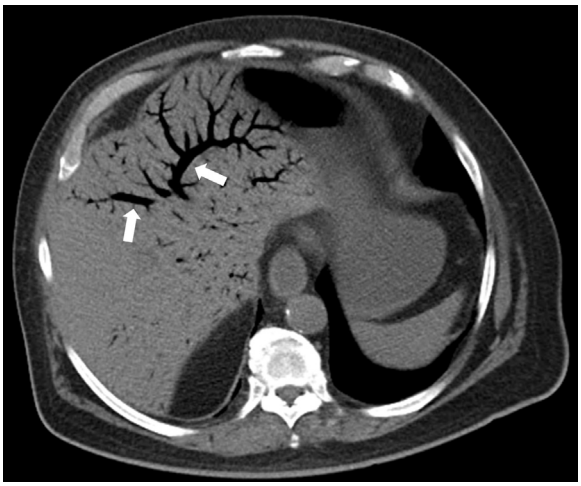

Figure 1. Noncontrast CT of the abdomen (axial view), demonstrating extensive gas in the portal system (arrows).

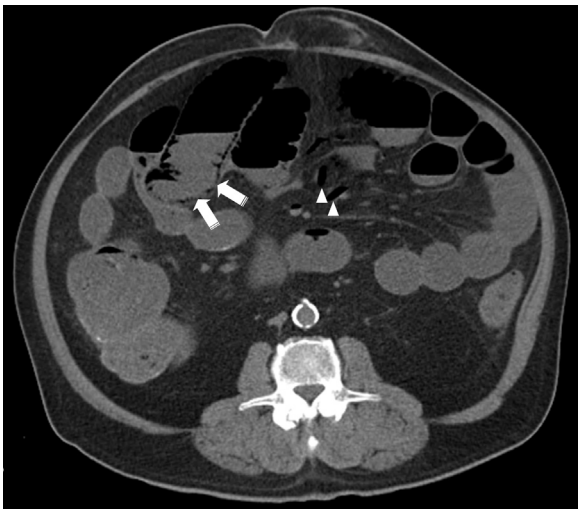

Figure 2. Noncontrast CT of the abdomen (axial view), showing gas in the mesenteric venous system (arrowheads) and diffusely dilated loops of bowel with pneumatosis (arrows).

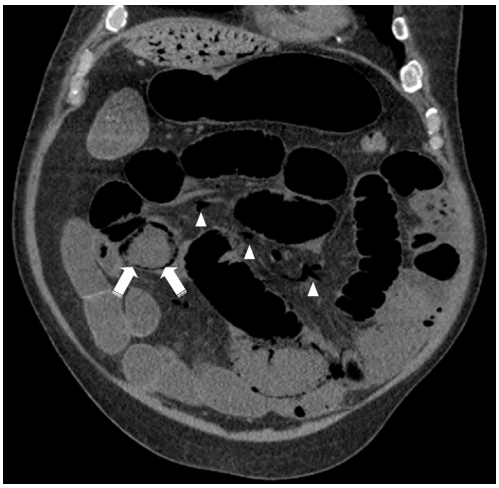

Figure 3. Noncontrast CT of the abdomen (coronal view), demonstrating gas in the mesenteric venous system (arrowheads) and diffusely dilated loops of bowel with pneumatosis (arrows).

Figure 4. Noncontrast CT of the abdomen (sagittal view), showing gas in the portal (solid arrows) and mesenteric (arrowheads) venous systems, and diffusely dilated small bowel with pneumatosis (striped arrows).

[Ann Emerg Med. 2018;72:644.]

A 62-year-old man with diabetes, chronic kidney disease, and atrial fibrillation presented to our emergency department with sudden-onset abdominal pain and bilious emesis. Initial vital signs showed a blood pressure of 90/60 mm Hg, pulse rate of 135 beats/min, and tympanic membrane temperature of 36.8°C (98.2°F). Physical examination was notable for a distended abdomen with rebound tenderness and hypoactive bowel sounds. Initial laboratory testing result was notable for leukocytosis. Noncontrast enhanced abdominal computed tomography (CT) showed extensive gas in the mesenteric and hepatic portal venous system, and small bowel dilatation with pneumatosis (Figures 1 to 4).

For the diagnosis and teaching points, see page 653.
To view the entire collection of Images in Emergency Medicine, visit www.annemergmed.com

intubating doses of mivacurium chloride or succinylcholine in surgical outpatients. *Anesth Analg*. 1989;69:93-99.
15. Weiss JH, Gratz I, Goldberg ME, et al. Double-blind comparison of two doses of rocuronium and succinylcholine for rapid-sequence intubation. *J Clin Anesth*. 1997;9:379-382.
16. Larsen PB, Hansen EG, Jacobsen LS, et al. Intubation conditions after rocuronium or succinylcholine for rapid sequence induction with alfentanil and propofol in the emergency patient. *Eur J Anaesthesiol*. 2005;22:748-753.
17. Marsch SC, Steiner L, Bucher E, et al. Succinylcholine versus rocuronium for rapid sequence intubation in intensive care: a prospective, randomized controlled trial. *Crit Care*. 2011;15:R199.
18. Sluga M, Ummenhofer W, Studer W, et al. Rocuronium versus succinylcholine for rapid sequence induction of anesthesia and endotracheal intubation: a prospective, randomized trial in emergent cases. *Anesth Analg*. 2005;101:1356-1361.
19. Takazawa T, Mitsuhata H, Mertes PM. Sugammadex and rocuronium-induced anaphylaxis. *J Anesth*. 2016;30:290-297.

IMAGES IN EMERGENCY MEDICINE

(continued from p. 644)

DIAGNOSIS:

Mesenteric ischemia. Hepatic portal venous gas with the finding of pneumatosis intestinalis is most frequently associated with ischemic bowel. CT showed extensive gas in the portal (Figures 1 and 4, solid arrows) and mesenteric venous systems (Figures 2 to 4, arrowheads), and diffusely dilated small bowel with pneumatosis (Figures 2 to 4, striped arrows). The patient underwent partial small bowel resection and had an uneventful postoperative course. The cause of small bowel ischemia was an embolic source related to his atrial fibrillation.

The precise mechanism for the formation of gas in the hepatic portal venous system remains uncertain. The primary factors that favor the development of hepatic portal venous gas are increased intestinal permeability, bowel distention, and sepsis.[1] The most significant and prevailing cause of hepatic portal venous gas in adults is mesenteric ischemia.[2] However, the association of hepatic portal venous gas with this disease process does not imply a worse prognosis; therefore, surgical treatment should not be excluded when this sign is present.[3]

Author affiliations: From the Division of Pulmonary and Critical Care Medicine, David Geffen School of Medicine at UCLA, Los Angeles, CA (Young); and the Department of Medicine (Raafat) and Division of Pulmonary and Critical Care Medicine (Kamangar), David Geffen School of Medicine at UCLA, UCLA–Olive View Medical Center, Sylmar, CA.

REFERENCES

1. Liebman PR, Patten MT, Manny J, et al. Hepatic-portal venous gas in adults: etiology, pathophysiology and clinical significance. *Ann Surg*. 1978;187:281-287.
2. Hong JJ, Gadaleta D, Rossi P, et al. Portal vein gas: a changing clinical entity. *Arch Surg*. 1997;132:1071-1075.
3. Faberman RS, Mayo-Smith WW. Outcome of 17 patients with portal venous gas detected by CT. *AJR Am J Roentgenol*. 1997;169:1535-1538.